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ABSTRACT

Guidelines are presented to help teachers apply specific criteria for choosing microcomputer software and adapting courseware from other disciplines to the teaching of disabled readers. The guidelines discuss how to provide individualized instruction by ascertaining the readability of materials and the reading ability of students. Guidelines also consider ways in which to save time and effort in record keeping, cultivate student creativity and motivation, and select appropriate computer journals and periodicals. Lists of computer journals, popular educational hardware manufacturers, and educational software houses are included. (CB)

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COMPETENT TEACHING: REACHING DISABLED READERS THROUGH MICROCOMPUTER TECHNOLOGY

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Reading is the basis for all other instruction. Yet all too often, printed materials in the content areas are too difficult for many students to read independently. Teachers need to know the readability of their materials and the reading ability of their students. With intelligent use of microcomputer technology, teachers achieve greater competence through their ability to provide effective individual instruction, improve lesson planning and record keeping efficiency, identify classroom needs more accurately, promote increased student motivation and creativity, and select appropriate journals and periodicals. Knowing how to choose software to satisfy classroom needs will save supply money and prevent teacher headaches, as well as improve teacher competence to meet individual student needs. By applying specific criteria for choosing quality software and adapting courseware from other disciplines, the competent teacher can effectively obtain the proper tools for the job.

Software is usually acquired from either a local dealer or by mail. When buying software, TRY IT BEFORE YOU BUY IT! Get a copy on trial basis or borrow one and use it for several days or weeks before paying any money. Some software is very good, much is not. While the quality of educational software is increasing, it still is wise to shop around. Most educational software houses will send you catalogs free for the asking. Many computing magazines have a software review section. The important thing to remember: Get your software first, then buy the hardware to run it.

When microcomputers have been effective as tools for teaching, certain criteria involving the school and classroom environment, decision making at all stages of implementation, and training and support of teachers have been met. Higher achievement can be expected when learners have been paired with

appropriate CAI materials. Lower achieving students work better with drill-and-practice materials; special education students benefit from using modifiable or adjustable software; students needing challenge require simulations and creative applications. When quality software has been used under the proper conditions, student achievement has been improved (Education TURNKEY System, 1985).

> The Education TURNKEY System, Inc. (1985) summary report lists nine characteristics of quality educational software. All or most of the following characteristics can be found in courseware that improves student achievement:
>
> * provides opportunities for students to control (or perceive they control) the learning process;
> * provides interaction, feedback, and often rewards;
> * allows students and/or teachers to establish goals and provides for self-evaluation;
> * allows diagnosis of conceptual difficulties with materials and prescriptive branching;
> * uses the full range of hardware capabilities such as graphics, sound and color, etc.;
> * includes important concepts, if curricular in nature, as well as facts related to subject matter;
> * allows for easy integration, if supplemental, into curriculum;
> * includes, at a minimum, student record keeping capabilities, if curricular in nature, and monitors student progress; and
> * allows for easy operation, accompanied by clear documentation, and can be modified by teachers (p. 4).

Successful individual instruction depends on determining students' strengths and weaknesses, then developing their abilities to meet their needs. Teachers need to be aware of the different computer aides available to assist them in determining the strengths and weaknesses of their students.

An important part of individualization requires matching print materials to student reading levels. The Jamestown Fry Readability Program permits a rapid, less tedious, and consistently accruate estimation of the readability of textbooks. The process involves incoding approximately three 100-word passages from the text. The computer program performs the calculations of

number of syllables and sentences to determine the reading levels, +/- six months, of each passage plus a total average for all three passages.

In order to diagnose students' vocabulary and passage comprehension ability, Educational Activities' Informal Reading Comprehension Placement Test can be administered. This test presents vocabulary comprehension through a multiple choice format. Students read a sentence in which a word is underlined, then choose a synonym from a list of words. To assess passage comprehension, the student chooses the correct response from a list of three possibilities. The program allows the student to reread the passage once. At the completion of the test, grade level mastery scores for passage and vocabulary comprehension are given.

Meeting students' needs for reading instruction in a well developed and professionally sound manner can be accomplished through use of Jamestown's Fry Reading Drills. This program consists of two components, a soft-cover text and a computer administered assessment package. The book contains short stories which are read silently while the computer times the student. Each story has one set of comprehension questions, two cloze passages, and one set of vocabulary questions.

Teachers spend a great deal of time and effort keeping class records, maintaining up-to-date references, and designing teacher made materials. Generally, most of this work is either handwritten or typed. Word processors, however, save time and increase efficiency in lesson planning and record keeping. Using a word processor enables teachers to more competently fulfill their management responsiblities. Word processing provides many advantages which keep materials neat, handy, and easy to revise: inserting or deleting single words or full paragraphs; transferring passages from one place to

another; cutting heat or carbon stencils with a printer; checking spelling; printing form letters; and correcting mistakes easily. Full featured word processors, such as Apple Writer //e, provide the most versatile packages for teachers. With the word processor, teachers save time which can be spent with the students.

Word processors also promote student motivation and creativity. Teachers who combine brainstorming techniques with text editing software stimulate student interest and imagination through writing and illustrating. Language Experience Approach software provides ample opportunity for children to explore writing and reading.

Story Machine sparks interest through animation, a limited vocabulary, and specific grammatical rules. Students may use only present tense verbs; begin each sentence with an article, pronoun or an adjective; and end each sentence with a period. The program erases spelling mistakes, then the user must write the word correctly. Upon completion, the author presses the escape key to replay the story.

Another type of language experience package, Kid Writer, allows children to use their entire vocabulary. A menu permits the students to choose a background and different objects about which to write. These objects (99 total) can be changed in terms of color, size and shape, and position on the screen. When these decisions have been made, the children are ready to begin writing. Stories can be erased or saved and read later by the author or others.

While software such as Kid Writer and Story Machine enables teachers to develop reading and writing skills in younger children, packages such as the Milliken Word Processor are available for middle school children. Milliken

provides an introduction to full featured text editing packages. All the directions needed for Milliken can be found on the computer screen; students need no manual. The children use the pictures and choices provided to decide what to do. Stories can either be filed away for future reference or erased. Other software packages to enhance reading and writing skills include Kermit's Electronic Story Maker, Bank Street Storybook, Just Imagine, Story Maker: Fact and Fiction Tool Kit, and The Newsroom.

Selecting appropriate periodicals promotes the growth of student interest and expands the limits of teacher understanding and capability. Journals devoted to educational microcomputing disseminate ideas for classroom application and information about hardware and software products.

Student teachers and classroom teachers need to know how to integrate microcomputer technology into the total teaching experience. Only through hands-on training followed by in-service application will they attain the improved competence possible through efficient use of the microcomputer. As a beginning point for further exploration of the necessities for training and the possibilities for teaching, lists of hardware and software sources and an annotated list of computer periodicals follow.

Computer Journals

Educational

CRLA: COMPUTERS, READING & LANGUAGE ARTS Gerald H. Block, Ph.D., Editor-in-Chief. PO Box 13039, Oakland, CA 94661.

COMPUTERS AND EDUCATION David F. Rogers and P. R. Smith. Pergamon Press, Maxwell House, Fairview Park, Elmsford, NJ 10523.

APPLE EDUCATION NEWS: An Information Service for Educators and Trainers. Sue Tally, Editor. 20525 Mariani Avenue, Cupertino, CA 95014. (courtesy subscriptions available on written request)

EDUCOM BULLETIN (College Level) Sheldon B. Smith. EDUCOM, P. O. Box 364, Princeton, NJ 08540

EDUCATIONAL TECHNOLOGY Lawrence Lipsitz. Educational Technology Publications, Inc. 720 Palisade Avenue, Englewood Cliffs, NJ 07632.

ADCIS JOURNAL OF COMPUTER-BASED INSTRUCTION Allen Avner. The Association for the Development of Computer-Based Instructional Systems, Bellingham, Washington 98225.

PHI DELTA KAPPAN Robert W. Cole. Phi Delta Kappa, Inc., Eighth & Union, P. O. Box 789 Bloomington IN 47402.

THE READING TEACHER Janet Ramage Binkley. International Reading Association, Inc. 800 Barksdale Road, Newark, Delaware 19711.

THE JOURNAL OF READING Janet Ramage Binkley. International Reading Association, Inc. 800 Barksdale Rooad, Newark Delaware 19711.

INSTRUCTOR Leanna Landsmann editor-in-chief. Instructor Publications, Inc. 545 Fifth Ave., NY, NY 10017.

General

COMPUTE! Robert C. Lock, Editor. PO Box 5406, Greensboro, NC 27403

CREATIVE COMPUTING David H. Ahl, Editor. PO Box 5214, Boulder, CO 80321

INCIDER Paul C. Quinn, Editor. PO Box 911, Farmingdale, NY 11737 (Apple specific, primarily for the Apple // family)

PERSONAL COMPUTING Charles L. Martin, Editor. PO Box 2942, Boulder, CO 80322

POPULAR COMPUTING Richard Friedman, Managing Editor. POB 307, Martinsville, NJ 08836

SOFTALK Margot Comstock Tommervik, Editor. BOX 7039, NORTH HOLLYWOOD, CA 91605 (Apple specific)

POPULAR EDUCATIONAL HARDWARE MANUFACTURERS

For product information, send a postcard to:

Apple Computers *
20525 Maryani Ave.
Cupertino, CA 95014

IBM Personal Computers *
250 N. Federal Highway
P.O. Box 1328-D
Boca Raton, FL 33432

Atari Computers *
Attn: Customer Relations
1312 Crossman
Sunnyvale, CA 94086

Radio Shack Computer Division *
18 One Tandy Center
Fort Worth, TX 76102

Commodore Computer Systems Division *
487 Dezon Drive
Wayne, PA 19087

Ask for:
Personal computer product information (* also sell software)

EDUCATIONAL SOFTWARE HOUSES: A PARTIAL LIST

Compress
Box 102
Wentworth, NM 03282

Conduit
Box 388
Iowa City, IA 52244

Creative Computing
Box 789-M
Morristown, NJ 07960

Dr. Daley Software
425 Grove Ave.
Berrien Springs, MI 49103

Educational Activities Inc.
1937 Grand Ave.
Baldwin, NY 11510

Edu-Ware Services Inc.
2222 Sherman Way
Suite 102
Canoga Park, CA 91303

High Technology
16111 Northwest 23rd St.
Oklahoma City, OK 73106

Instant Software
Peterborough, NH 03458

J&S Software
140 Reid Ave.
Port Washington, NY 11050

Jensen Tools Inc.
1230 S. Priest Drive
Tempe, AZ 85281

Krell Software
21 Millbrook Drive
Stonybrook, NY 11790

Micro-Ed
Box 24156
Minneapolis, MN 55424

Micro Learningware
Box 2134
Mankato, MN 56001

Microcomputers in Education
4148 Winnetka Ave. North
Minneapolis, MN 55427

Microphys
2048 Lord St.
Brooklyn, NY 11229

Milliken Publishing Company
1100 Research Blvd.
St. louis, MO 63132

Muse Software
330 N. Charles St.
Baltimore, MD 21201

Programs for Learning Inc.
Box 954
New Milford, CT 06776

Program Design Inc.
11 Idar Court
Greenwhich, CT 06830

Science Research Associates, Inc.
155 North Wacker Drive
Chicago, IL 60606

Troll Micro
320 Rt. 17
Mahwah, New Jersey 07430

TYC
Teach Your Computer
40 Stuyvesant Manor
Genesco, NY 14454

In addition to these software houses, five hardware manufacturers also market software: Apple, Atari, Radio Shack, IBM (through SRA), and Commodore.